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United States Patent [19]**Ohno et al.**[11] **Patent Number:** **6,051,613**[45] **Date of Patent:** **Apr. 18, 2000**[54] **NITROGEN MONOXIDE PRODUCTION
SUPPRESSOR**[75] Inventors: **Kousaku Ohno**, Tottori; **Jin-emon
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Hyogo, all of Japan[73] Assignee: **Nippon Zoki Pharmaceutical Co.,
Ltd.**, Osaka, Japan[21] Appl. No.: **09/002,928**[22] Filed: **Jan. 5, 1998**[30] **Foreign Application Priority Data**

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[51] **Int. Cl.⁷** **A61K 35/12**; A61K 35/36[52] **U.S. Cl.** **514/770**; 514/789; 514/921;
428/520; 428/529; 428/548; 428/553; 428/557;
428/558; 428/559; 428/563; 428/568; 428/570;
428/571; 428/572; 428/573; 428/574[58] **Field of Search** 514/770, 789,
514/921; 424/520, 529, 548, 553, 557,
558, 559, 563, 568, 570, 571, 572, 573,
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1733-1739.*Primary Examiner*—Frederick Krass*Attorney, Agent, or Firm*—Hollander Law Firm, P.L.C.[57] **ABSTRACT**

A pharmaceutical composition containing an extract from inflammatory tissue inoculated with vaccinia virus may be used to suppress the death of cells caused by endotoxin, and suppress excessive production of nitrogen monoxide induced by endotoxin. The extract may also be used to relieve hypotension induced by endotoxin. In sepsis and other serious bacterial infectious diseases, endotoxin (an intracellular toxin) is produced and a shock symptom is induced by its action. The extract, having an excellent inhibitory action toward endotoxin-induced toxicity, is quite useful for the treatment or the prevention of endotoxin-induced shock symptoms, sepsis and various symptoms accompanied thereby. In addition, the extract has an inhibitory action towards abnormal nitrogen monoxide production during the diseased state and, therefore, it is also useful as a therapeutic and preventive agent for diseases wherein an excessive nitrogen monoxide production occurs, such as acute hypotension.

24 Claims, 3 Drawing Sheets